REPORT

FROM

THE SECRETARY OF WAR,

TRANSMITTING

A report of the Survey of the St. Francis river; in obedience to a resolution of the Senate of 28th February.

March 3, 1837.

Read, and ordered to be printed.

War Department, *March* 2, 1837.

Sir: In answer to the resolution of the Senate of the 28th ultimo, I have the honor to transmit herewith a communication of the officer in charge of the Topographical bureau, accompanied by a copy of the report of the "officer detailed to make surveys of the St. Francis, Black, and White rivers."

Very respectfully,
Your most obedient servant,
B. F. BUTLER,
Secretary of War ad interim.

Hon. Wm. R. King,
President of the Senate pro tem.

Topographical Bureau,
Washington, March 2, 1837.

Sir: I have the honor of submitting the report of the survey of the St. Francis river, called for by a resolution of the Senate of the 28th February.

Very respectfully, sir,
Your obedient servant,
J. J. ABERT,
Lt. Col. Topographical Engineers.

Hon. B. F. Butler,
Secretary of War ad interim.

HELENA, (ARK.) *January* 17, 1837.

SIR: Having, in obedience to your instructions of the 15th July last, completed the survey of a route for a railroad from Louisiana to Columbia, in Missouri, I proceeded, with as little delay as possible, to comply with your subsequent order of the 18th October, directing me to make a "survey of the St. Francis, Black, and White rivers, in Missouri and Arkansas, to determine upon the expediency of removing the natural rafts thereon;" for which object I was furnished, by the Treasurer of the United States, with the sum of one thousand dollars.

Viewing, from all the information I could obtain, the examination of the St. Francis as of as much importance as that of any of the three rivers named, if not of the most, I first directed my attention to it, and proceeded to Greenville, in Wayne county, Missouri, a small town situated upon its eastern bank; but owing to continued rains during the autumn months, which had very much impeded me in the execution of my previous duties, and to other accidental causes of delay, I did not reach it until the 15th of December. At this point, which is as high as it is supposed it would be navigated if all the obstructions below were removed, I found the river to be a fine stream one hundred yards wide, and, being as full as it generally is one-half of the year, or, as it is termed, at its ordinary stage, affording eight to ten feet of water in the greater part of its channel, and on the bar opposite the town, five feet.

Having been detained nine days at Greenville, in consequence of the extreme difficulty of obtaining boats, provisions, and men, in this insulated spot, I did not begin to descend the river till the 24th of December, and not until after a heavy flood had swept down it, which rendered my personal observations less conclusive: sufficient information, however, it is believed, has been elicited to answer the ends of the inquiry.

Leaving Greenville on the 24th December, I reached the mouth of the St. Francis on the evening of the 16th January, having floated on its current an estimated distance of four hundred and nineteen miles. It is generally very uniform in its breadth, being, where it is a well-defined river, from a hundred to a hundred and fifty yards wide, to within about a hundred miles of its mouth. But its course, as may readily be inferred, by comparing the estimated length of its channel with that of a straight line between the extremities of my examination, is singularly crooked; indeed it is chiefly to this feature in the character of the stream that the obstructions termed "rafts" are to be ascribed, and their formation is easily traced. Descending from Greenville sixty-six miles, in which distance the river presents no other obstruction than a few logs lying in the channel, and trees overhanging its banks, the first raft is met with. This is a collection of logs, the most of them floating, lying entirely across the channel, and is 180 feet long and 170 wide. It is upheld, as it was doubtless formed, by a few trees which have been uprooted and precipitated into the channel in consequence of abrasion of the banks by the annual floods. The branches of these trees having been fixed firmly into the bottom, their trunks are held an effectual barrier to all the floating wood that would otherwise pass. Such being the nature of this raft, it is clear there would be but slight difficulty in its removal, which would involve little else than the labor and expense of withdrawing, at low water, those few logs which sustain the mass. The character

of all the "rafts" met with in this river is the same, and, as a consequence, the same remarks apply equally to them all. I shall therefore confine my notice of them to a mere statement of their number, dimensions, and position. The second "raft" is one mile below the first, and is 325 feet long and 220 wide; the third is nine miles below the second, and is 600 feet long and 175 feet wide; the fourth is found nineteen miles below the third, and is 60 feet long and 180 feet wide; the fifth is six miles below the fourth, and is 150 feet long and 180 wide; the sixth is six miles below the fifth, and is 300 feet long and 90 wide; and the seventh and last is thirty miles below the preceding one, and is 400 feet long and 200 wide.

I have here enumerated seven distinct and considerable "rafts," as the whole number to be met with in this river; and if they constituted the only or chief impediment to its navigation, the expediency of their removal would be clear. But by far the most extensive and formidable difficulty lies below them all, and consists in what, in the language of the country, is termed "the spread." This, as the term would imply, is an expansion of the waters of the river over an extensive tract of country, the precise width of which is not known, but which is probably, in some places, from 10 to 20 miles wide. The "spread" begins by a division of the channel of the river into several smaller ones, which soon being merged in one wide-spread cypress swamp, at a certain distance unite again their waters in one principal channel.

The first and most western of these channels leaves the principal stem at about one mile below the last "raft;" the middle one at about 12 miles from the same point, and the eastern, called Varner's river, is subdivided into several, one of which, named Chil-it-a-kaws river, runs eastwardly in time of flood into White-water or Little river.

These three principal channels, I was informed by my guide, an experienced hunter and trapper, who had explored them all at high and at low water, are of about equal importance, and afford about the same depth of water; the latter, he stated, was, in the dry season, not more in many places than one foot deep.

When I passed through this swamp the water was generally six feet deep, but in many places no more than three feet. It would be impossible to determine exactly, from the depth of water as measured at that time, what it would be in the dry season; but as the flood at the "raft," twelve miles higher up, was about ten feet above low-water mark, it is reasonable to infer that the statement made by the guide was correct.

Taking the middle channel at a point twelve miles below the "raft," I passed through the swamp twenty-six miles and re-entered Varner's river, which, at the junction, is completely choked with cypress and other trees. In this distance there is scarcely a defined channel, there being in many places a narrow passage of not more than 50 feet in width between the cypress trees, and this filled with logs and protuberances from the roots of the trees, called "knees," which rise nearly or quite to the surface of the water.

From the reunion with Varner's river, where all the branches are collected into one, to the line dividing the States of Missouri and Arkansas, a distance of about 22 miles, the river presents alternately a well-defined channel about six feet deep in the midst of the marsh, and a thick cypress swamp, having not more than three feet of water.

From the State line to the Mammelle prairie, a distance of 36 miles, the channel is generally distinctly marked, the swamp is contracted to a width of one or two miles, and but few cypress trees, or such as are common to wet situations, show themselves; but in several places the water is no more than two feet deep. To the Mammelle prairie, whence a lake leads to Croly's ridge, in Arkansas, keel-boats, a large species of vessel, have already been taken; thence sixteen miles to the mouth of Little river, where the "spread" ceases, I found from six to ten feet of water, and it is believed that there are seldom less than three feet. But that this portion of the "spread," as well as that extending up to the State line, has at some period been quite dry, there is indubitable evidence in the charred appearance of the dead trees now standing, which were probably burned during the great drought of 1819–20.

This "spread" is supposed by many to have had its origin in the earthquake which devastated the country about New Madrid, in 1811. But that the upper portion of it, especially that which embraces the division of the channel of the river, was not caused by that shock, seems very certain from the fact that, as far as the eye can penetrate on either side of the river, and in the very channel itself, there are growing cypress and other trees common to wet ground, whose size indicates an age that would reach much beyond that event. The lower portion of the spread, however, undoubtedly owes its present condition to some such convulsion of nature, for it is covered with the ruined trunks of such trees as are never known to grow in any other than dry situations. Indeed, all along the banks of the river, from even above the lowest "raft" to the lower termination of the "spread," there are abundant traces of the violence of this convulsion in the seams and chasms in the earth still remaining; but whatever may have been the cause of this singular condition of things, it seems pretty clear that nothing less than the powerful hand of nature can remedy the evil, by uplifting all that portion of country bordering the channel of the river, which is now covered with water and affords no barrier to confine it to proper limits.

That portion of the "spread" 16 miles long, extending from Mammelle prairie to Little river, which is now obstructed by old logs and stumps of trees, might easily be made navigable, and at a cost which I estimate at 200 dollars per mile.

From the mouth of Little river to the Mississippi, 171 miles, the St. Francis is a fine stream, gradually expanding from 150 to 300 yards in width, and as far as can be observed, without obstruction, except at extreme low water, when the channel over several bars, it is said, has no more than two feet of water; indeed, large steamboats have already ascended to Strong's steam-mill, ten miles below the crossing of the road from Memphis to Little Rock, and ninety miles from its mouth.

Finally, to decide upon "the expediency of removing the natural rafts in the St. Francis river," which proposition I suppose to embrace the propriety of removing all obstructions in it, of whatever character they may be, I will briefly recapitulate the facts set forth at large.

The obstructions, then, in the first 137 miles below Greenville, and embracing the lowest "raft," which is a little below the parallel of New Madrid, and about 25 miles distant from it, consist in trees on the banks overhanging the channel, logs lying in the channel, about 16 to the mile,

and seven "rafts," already described. In the next portion, extending 111 miles, to the mouth of Little river, and embracing the entire "spread," the difficulty consists in a deficiency of water and a channel choked with cypress and other trees. I have already intimated that there are no practicable means of securing to this latter portion of the river a sufficient depth of water to render it navigable during any considerable part of the year, in consequence of the lowness of its banks; and as this conclusion is correct, according to my judgment, the inexpediency of removing the natural "rafts" in the portion above is equally clear. This result is to be regretted, inasmuch as there are both above and below the rafts large bodies of fine land, which would prove a source of considerable revenue to the General Government, and of wealth and population to the States in which they lie, if the river afforded from them an easy access to a market.

The only portion, then, of the river which is worthy of an expenditure of money and labor, is that extending from about the Mammelle prairie to the mouth. This prairie is said to be extensive and of good quality, while on the opposite or eastern side, the peninsula between St. Francis and Little rivers, in time of flood surrounded by water, and hence called the Buffalo *island*, contains a tract of rich tillable soil, probably 20 miles wide and 40 or 50 miles in length. To remove all the logs and stumps of trees which encumber this portion of the river and render its navigation dangerous, the sum of $5,000 would, I think, be quite sufficient.

Before closing this report, it is proper for me to state that, of the appropriation for the survey of the St. Francis, Black, and White rivers, all but about $200 have been expended in the examination of the first, and that the balance being wholly insufficient for either of the remaining objects, I felt it my duty for this and other reasons to postpone any attention to them, rather than to waste that sum on an incomplete work.

The drawings illustrative of this report will be furnished as soon as they can be prepared.

I have the honor to be, sir,

Very respectfully, your obedient servant,

W. BOWLING GUION,

U. S. Civil Engineer.

To Lieut. Col. JOHN J. ABERT,

Topographical Bureau.